Appendix E
Initial CHART Assessment for the Oregon Coast Coho Salmon ESU

CHART Participants

The CHART for this ESU consisted of the following NOAA Fisheries biologists: Ken Phippen (CHART Leader), Lance Kruzic, Pete Lawson, Rob Markle, Heather Stout. Bob Ruediger (U.S. Bureau of Land Management) and Gordie Reeves and Wade Sims (U.S. Forest Service) are other Federal biologists who served on this CHART.

ESU Description

The Oregon Coast coho ESU includes all naturally spawned populations of coho salmon in Oregon coastal streams south of the Columbia River and north of Cape Blanco (63 FR 42587, August 10, 1998). We have proposed that five artificial propagation programs also be considered part of the ESU (69 FR 33101, June 14, 2004): the North Umpqua River (ODFW stock # 18), Cow Creek (ODFW stock # 37), Coos Basin (ODFW stock #37), Coquille River (ODFW stock # 44), and North Fork Nehalem River (ODFW stock # 32) coho hatchery programs.

Geographical isolation is an important factor in the evolution of these separate populations within or between basins. The Oregon Coast coho ESU is, in general, composed of relatively small basins (the Umpqua basin, an exception to this general rule, is a relatively large basin characterized by diverse vegetation and geology). The distance between saltwater entry points of each basin may significantly affect the level of migration or connectivity among populations. Some populations may be significantly affected by migrants from larger or more productive systems The Oregon-Northern California Coast TRT has putatively identified 19 "functionally" and "potentially" independent populations, 48 additional dependent populations (Lawson et al. 2004). The functionally and potentially independent populations include: the Necanicum River, Nehalem River, Tillamook Bay, Nestucca River, Salmon River, Siletz River, Yaquina River, Beaver Creek, Alsea River, Siuslaw River, Siltcoos River (lake), Tahkenitch Creek (lake), Lower Umpqua River, Upper Umpqua River, Tenmile Creek (lake), Coos Bay, Coquille River, Floras Creek, and Sixes River populations. Recovery planning will likely emphasize the need for a geographical distribution of viable populations across the range of the ESU (Ruckelshaus et al. 2002, McElhany et al. 2003). Ecological strata or regions have not been identified for the Oregon Coast coho ESU. The TRT noted that, given the dominant influence of the ocean on the Oregon Coast climate, ecological conditions are relatively uniform throughout the ESU. The Umpqua River basin is an exception, with

inland areas being drier and experiencing more extreme temperatures than the coastal areas. Ecological differences within the ESU relate to the effects of local topography on rainfall, and of local geology on vegetation composition and slope stability.

Adult coho salmon begin migrating into coastal streams and rivers with the first freshets in the fall. Spawning begins in November, peaking in December or January, and many continue into March. Eggs hatch in the spring and fry grow rapidly to the parr stage by early summer or early fall. Parr then seek out areas protected from high flows and spend a second winter in freshwater before migrating to the ocean as smolts in March through June. Smolt outmigration timing and smolt size appear to respond to small-scale habitat variability, and have been shown to be affected by anthropogenic activities including: habitat degradation (Moring and Lantz 1975) and habitat restoration (Johnson et al. 1993, Rodgers et al. 1993). About twenty percent of males mature at age 2 and return to freshwater as "jacks" in the same year they entered the ocean as adults. Although the production of jacks is an heritable trait in coho salmon (Iwamoto et al. 1984), the proportion of jacks in a given coho salmon populations is strongly influenced by environmental factors (Silverstein and Hershberger 1992). The remainder of juveniles rear in the ocean for 18 months and return as 3-year-old adults in the fallowing fall.

Habitat capacity for coho salmon on the Oregon Coast has significantly decreased from historical levels (NMFS 2003). During periods of poor ocean survival, high quality habitat is necessary to sustain coho populations (Nickelson and Lawson 1998). The following habitat features have been identified as important to the recovery of Oregon Coast coho salmon (IMST 2002): structure and function of lowland areas, wetland, floodplains, and riparian forests; the presence of large wood on beaches and stream banks, and in streams, channels, estuaries, and floodplains; water quality, including temperature; hydrologic function and flow regimes; connectivity of rivers with floodplain and off-channel habitats; and the presence of diverse native plant communities subject to natural disturbance regimes.

CHART Area Assessments and Initial Conservation Value Ratings

The Oregon Coast Team's assessment for this ESU addressed habitat areas within 80 occupied watersheds in 13 associated subbasins (identified below as "units" with unique HUC4 numbers). As part of its assessment, the CHART considered the conservation value of each habitat area in the context of the productivity, spatial distribution, and diversity of habitats across the range of the populations identified by the Oregon-Northern California Coast TRT. The Technical Recovery Team has only recently identified provisional populations for this ESU (Lawson et al. 2004). Therefore, this information was not available to the CHART for the initial assessment reported herein.

The agency expects to reconvene the CHART and incorporate the best available information on ESU population structure prior to making final determinations for this ESU.

Unit 1. Necanicum River Subbasin (HUC4 # 17100201)

This subbasin contains a single watershed which is occupied by the ESU and encompasses approximately 137 square miles. Fish distribution and habitat use data from ODFW identify approximately 87 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern California Coast TRT (2003) putatively identified one "potentially" independent population (the Necanicum River population) occupying this subbasin. The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: forestry, grazing, and urbanization. The Oregon Coast CHART concluded that habitat areas in the one occupied watershed comprising this subbasin are of medium conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 2. Nehalem River Subbasin (HUC4 # 17100202)

This subbasin contains six watersheds, each of which is occupied by the ESU. These watersheds encompass approximately 855 square miles. Fish distribution and habitat use data from ODFW identify approximately 675 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern California Coast TRT (2003) identified one "functionally" independent population (the Nehalem River population) occupying this subbasin. The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: agriculture, forestry, grazing, and urbanization. Of the six watersheds reviewed by the CHART, habitat areas in all but one watershed were rated as having high conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 3. Wilson–Trask-Nestucca Rivers Subbasin (HUC4 # 17100203)

This subbasin contains nine watersheds, each of which are occupied by the ESU. These watersheds encompass approximately 889 square miles. Fish distribution and habitat use data from ODFW identify approximately 632 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern California Coast TRT (2003) two

"functionally" independent populations (the Tillamook Bay and Nestucca River populations) occupying this subbasin. The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: agriculture, forestry, urbanization, and river, estuary and ocean traffic. Of the nine watersheds reviewed by the CHART, habitat areas in seven were rated as having high, and those in two were rated as having medium conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 4. Siletz-Yaquina Rivers Subbasin (HUC4 # 17100204)

This subbasin contains nine watersheds, eight of which are occupied by the ESU and encompass approximately 642 square miles. Fish distribution and habitat use data from ODFW identify approximately 612 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern California Coast TRT (2003) identified three "functionally" or "potentially" independent populations (the Salmon, Siletz, and Yaquina River populations) in this subbasin. The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: agriculture, forestry, grazing, sand and gravel mining, urbanization, and river, estuary, and ocean traffic. Of the eight watersheds reviewed by the CHART, habitat areas in three were rated as having high, and those in five were rated as having medium conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 5. Alsea River Subbasin (HUC4 # 17100205)

This subbasin contains eight watersheds, each of which is occupied by the ESU. These watersheds encompass approximately 690 square miles. Fish distribution and habitat use data from ODFW identify approximately 559 miles of occupied riverine habitat in the subbasin (ODFW 2003A,B). The Oregon–Northern California Coast TRT (2003) identified two "functionally" or "potentially" independent populations (the Beaver Creek and Alsea River populations) in this subbasin. The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: agriculture, forestry, grazing, sand and gravel mining, and urbanization. Of the eight watersheds reviewed by the CHART, habitat areas in four were rated as having high, those in three were rated as having medium, and those in one (the Big Creek/Vingie Creek watershed) were rated as

having low conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 6. Siuslaw River Subbasin (HUC4 # 17100206)

This subbasin contains eight watersheds, each of which is occupied by the ES. These watersheds encompass approximately 776 square miles. Fish distribution and habitat use data from ODFW identify approximately 774 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern California Coast TRT (2003) identified one"functionally" independent population (the Siuslaw River population) in this subbasin. The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: agriculture, forestry, grazing, and urbanization. Of the eight watersheds reviewed by the CHART, habitat areas in six were rated as having high, and those in two were rated as having medium conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 7. Siltcoos River Subbasin (HUC4 # 17100207

This subbasin contains one watershed which is occupied by the ESU and encompasses approximately 131 square miles. Fish distribution and habitat use data from ODFW identify approximately 137 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern California Coast TRT (2003) identified two "potentially" independent populations (the Siltcoos River (lake) and Tahkenitch Creek (lake) populations) in this subbasin. The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: forestry, grazing, and urbanization. The Oregon Coast CHART concluded that habitat areas in the one occupied watershed comprising this subbasin is of high conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 8. North Fork Umpqua River Subbasin (HUC4 # 17100301)

This subbasin contains twelve watersheds, however, due to habitat blockage from the Soda Springs Dam only the lower seven watersheds are accessible to Oregon Coast coho salmon. These seven occupied watersheds encompass approximately 924 square miles. Fish distribution and habitat use data from ODFW identify approximately 175 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern

California Coast TRT (2003) identified one "functionally" independent population (the Upper Umpqua River population) that is contained within in this subbasin and the South Fork Umpqua River subbasin (HUC4# 17100302, below). The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: agriculture, forestry, grazing, and urbanization. Of the seven watersheds reviewed by the CHART, habitat areas in one watershed were rated as having high, those in three watersheds were rated as having medium, and those in three watersheds were rated as having low conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 9. South Fork Umpqua River Subbasin (HUC4 # 17100302)

This subbasin contains thirteen watersheds, of which twelve are occupied by the ESU encompassing approximately 1,727 square miles. Fish distribution and habitat use data from ODFW identify approximately 693 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern California Coast TRT (2003) identified one"functionally" independent population (the Upper Umpqua River population) that is contained within in this subbasin and the North Fork Umpqua River subbasin (HUC4# 17100301, above). . The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: agriculture, forestry, grazing, irrigation impoundments and withdrawals, mineral mining, sand and gravel mining, and urbanization. Of the twelve watersheds reviewed by the CHART, habitat areas in one watershed were rated as having high, those in eight watersheds were rated as having medium, and those in three watersheds were rated as having low conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 10. Umpqua River Subbasin (HUC4 # 17100303)

This subbasin contains eight watersheds, each of which is occupied by the ESU. These watersheds encompass approximately 1,514 square miles. Fish distribution and habitat use data from ODFW identify approximately 1,083 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern California Coast TRT (2003) identified one "functionally" independent population (the Lower Umpqua River population) that is contained within in this subbasin. The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: agriculture, forestry,

grazing, irrigation impoundments and withdrawals, mineral mining, urbanization, and river, estuary, and ocean traffic. Of the eight watersheds reviewed by the CHART, habitat areas in five watersheds were rated as having high, those in two watersheds were rated as having medium, and those in one watershed were rated as having low conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 11. Coos River Subbasin (HUC4 # 17100304)

This subbasin contains four watersheds, each of which is occupied by the ESU. These watersheds encompass approximately 737 square miles. Fish distribution and habitat use data from ODFW identify approximately 541 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern California Coast TRT (2003) identified one "potentially" independent population (the Coos Bay population) in this subbasin. The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: agriculture, forestry, grazing, and urbanization. Of the four watersheds reviewed by the CHART, habitat areas in all four were rated as having high conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 12. Coquille River Subbasin (HUC4 # 17100305)

This subbasin contains six watersheds, each of which is occupied by the ESU. These watersheds encompass approximately 1,057 square miles. Fish distribution and habitat use data from ODFW identify approximately 546 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern California Coast TRT (2003) identified one "functionally" independent population (the Coquille River population) in this subbasin. The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: agriculture, forestry, grazing, irrigation impoundments and withdrawals, mineral mining, and urbanization. Of the six watersheds reviewed by the CHART, habitat areas in four were rated as having high, those in one were rated as having medium, and those in one were rated as having low conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 13. Sixes River Subbasin (HUC4 # 17100306)

This subbasin contains four watersheds, two of which are occupied by the ESU and encompass approximately 290 square miles. Fish distribution and habitat use data from ODFW identify approximately 149 miles of occupied riverine habitat in the subbasin (ODFW 2003a,b). The Oregon–Northern California Coast TRT (2003) identified two "potentially" independent populations (the Sixes River and Floras Creek populations) in this subbasin. The CHART concluded that all occupied areas contain spawning, rearing, or migration PCEs for this ESU and identified several management activities that may affect the PCEs, including: agriculture, forestry, grazing, irrigation impoundments and withdrawals, and sand and gravel mining. Of the two watersheds reviewed by the CHART, habitat areas in one were rated as having high, and those in the other were rated as having medium conservation value to the ESU. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Marine Areas

NOAA Fisheries' analysis focused on freshwater and estuarine habitats upstream of the mouths of water bodies in the coastal subbasins described above. While marine areas are occupied by this ESU, within this vast area the agency has not identified "specific areas within the geographical area occupied by the species . . . on which are found those physical or biological features . . . essential to the conservation of the species."

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Table E1. Summary of Occupied Areas, PCEs, and Management Activities Affecting PCEs for the Oregon Coast Coho Salmon ESU

Map Code	Subbasin	Watershed	HUC5 Code	Spawning/ Rearing PCEs (mi)	Rearing/ Migration PCEs (mi)	Presence/ Migration Only PCEs (mi)*	Management Activities**
E1	NECANICUM	Necanicum River	1710020101	60.6	26.3		F, G, U
E2	NEHALEM	Upper Nehalem River	1710020201	155.0	41.7		F, U
E2	NEHALEM	Middle Nehalem River	1710020202	124.0	38.0		F, G
E2	NEHALEM	Lower Nehalem River	1710020203	103.7	38.1	0.4	A, F
E2	NEHALEM	Salmonberry River	1710020204	4.8	11.0		F
E2	NEHALEM	North Fork Of Nehalem River	1710020205	53.7	25.9		A, F
E2	NEHALEM	Lower Nehalem River/Cook Creek	1710020206	45.0	30.2	4.2	A, F, U
E3	WILSON/TRASK/ NESTUCCA	Little Nestucca River	1710020301	28.7	9.5		A, F, U
E3	WILSON/TRASK/ NESTUCCA	Nestucca River	1710020302	129.3	42.1	3.2	A, F
E3	WILSON/TRASK/ NESTUCCA	Tillamook River	1710020303	34.6	21.6		F, G
E3	WILSON/TRASK/ NESTUCCA	Trask River	1710020304	75.1	42.0		A, F, G, U
E3	WILSON/TRASK/ NESTUCCA	Wilson River	1710020305	70.3	36.5		F, G, U
E3	WILSON/TRASK/ NESTUCCA	Kilchis River	1710020306	29.5	13.5		F, G
E3	WILSON/TRASK/ NESTUCCA	Miami River	1710020307	19.6	6.3		A, F, G, U

Map Code	Subbasin	Watershed	HUC5 Code	Spawning/ Rearing PCEs (mi)	Rearing/ Migration PCEs (mi)	Presence/ Migration Only PCEs (mi)*	Management Activities**
E3	WILSON/TRASK/ NESTUCCA	Tillamook Bay	1710020308	4.4	21.8		A, F, G, R, U
E3	WILSON/TRASK/ NESTUCCA	Spring Creek/Sand Lake/Neskowin Creek Frontal	1710020309	32.2	12.2		A, F
E4	SILETZ/YAQUINA	Upper Yaquina River	1710020401	60.5	24.5		A, F, G, U
E3	SILETZ/YAQUINA	Big Elk Creek	1710020402	59.6	24.7		F, G
E3	SILETZ/YAQUINA	Lower Yaquina River	1710020403	34.6	57.6		A, F, G, R, U
E3	SILETZ/YAQUINA	Middle Siletz River	1710020405	31.9	15.9		F, G
E3	SILETZ/YAQUINA	Rock Creek/Siletz River	1710020406	26.0	5.3		F, G, S
E3	SILETZ/YAQUINA	Lower Siletz River	1710020407	107.5	69.1		F, G, U
E3	SILETZ/YAQUINA	Salmon River/Siletz/Yaquina Bay	1710020408	47.6	8.7		A, F
E3	SILETZ/YAQUINA	Devils Lake/Moolack Frontal	1710020409	28.5	10.4		F, G, U
E5	ALSEA	Upper Alsea River	1710020501	45.7	12.7		F, S
E5	ALSEA	Five Rivers/Lobster Creek	1710020502	101.3	22.3		F, S
E5	ALSEA	Drift Creek	1710020503	47.2	16.9		F, S
E5	ALSEA	Lower Alsea River	1710020504	85.1	51.9		A, F, G, U
E5	ALSEA	Beaver Creek/Waldport Bay	1710020505	25.4	16.9		A, F, U
E5	ALSEA	Yachats River	1710020506	43.5	3.7		F, G, U

Map Code	Subbasin	Watershed	HUC5 Code	Spawning/ Rearing PCEs (mi)	Rearing/ Migration PCEs (mi)	Presence/ Migration Only PCEs (mi)*	Management Activities**
E5	ALSEA	Cummins Creek/Tenmile Creek/Mercer Lake Frontal	1710020507	64.4	12.3		F
E5	ALSEA	Big Creek/Vingie Creek	1710020508	7.7	1.5		F
E6	SIUSLAW	Upper Siuslaw River	1710020601	123.8	78.4	1.6	A, F
E6	SIUSLAW	Wolf Creek	1710020602	40.1	17.0	0.5	F
E6	SIUSLAW	Wildcat Creek	1710020603	47.6	4.8		F
E6	SIUSLAW	Lake Creek	1710020604	67.4	30.3	2.1	A, F, G
E6	SIUSLAW	Deadwood Creek	1710020605	65.4			F, G
E6	SIUSLAW	Indian Creek/Lake Creek	1710020606	59.5			A, F
E6	SIUSLAW	North Fork Siuslaw River	1710020607	61.8	26.4		F, G, U
E6	SIUSLAW	Lower Siuslaw River	1710020608	78.2	69.2		F, G, U
E7	SILTCOOS	Waohink River/Siltcoos River/Tahkenitch Lake Frontal	1710020701	50.6	87.0		F, G, U
E8	NORTH UMPQUA	Boulder Creek	1710030106	0.9			F
E8	NORTH UMPQUA	Middle North Umpqua	1710030107	39.7			F, H
E8	NORTH UMPQUA	Steamboat Creek	1710030108	0.7			F
E8	NORTH UMPQUA	Canton Creek	1710030109	1.3			F
E8	NORTH UMPQUA	Rock Creek/North Umpqua River	1710030110	21.5			F
E8	NORTH UMPQUA	Little River	1710030111	35.0	7.1		F
E8	NORTH UMPQUA	Lower North Umpqua River	1710030112	33.9	35.1		A, F, G, U

Map Code	Subbasin	Watershed	HUC5 Code	Spawning/ Rearing PCEs (mi)	Rearing/ Migration PCEs (mi)	Presence/ Migration Only PCEs (mi)*	Management Activities**
E9	SOUTH UMPQUA	Upper South Umpqua River	1710030201	2.3	0.0		F
E9	SOUTH UMPQUA	Jackson Creek	1710030202	9.6	11.4		F, G
E9	SOUTH UMPQUA	Middle South Umpqua River	1710030203	13.0	19.7		F
E9	SOUTH UMPQUA	Elk Creek/South Umpqua	1710030204	24.1			F, G
E9	SOUTH UMPQUA	South Umpqua River	1710030205	66.7	28.2		A, F, G, I, M
E9	SOUTH UMPQUA	Middle Cow Creek	1710030207	66.1	24.7	2.6	A, F, U
E9	SOUTH UMPQUA	West Fork Cow Creek	1710030208	31.3			F
E9	SOUTH UMPQUA	Lower Cow Creek	1710030209	49.1	0.3	26.6	F, G
E9	SOUTH UMPQUA	Middle South Umpqua River	1710030210	42.4	0.0	21.8	A, F, G, S
E9	SOUTH UMPQUA	Myrtle Creek	1710030211	87.5	1.8		A, F, G, I, U
E9	SOUTH UMPQUA	Ollala Creek/Lookingglass	1710030212	55.2	21.6		F, G, I
E9	SOUTH UMPQUA	Lower South Umpqua River	1710030213	60.5	1.7	24.9	A, F, G, U
E10	UMPQUA	Upper Umpqua River	1710030301	110.2	0.0	57.4	A, F, G
E10	UMPQUA	Calapooya Creek	1710030302	114.3	14.0	20.1	F, G, I, M, U
E10	UMPQUA	Elk Creek	1710030303	171.5	4.3	26.0	A, F, G, I
E10	UMPQUA	Middle Umpqua River	1710030304	51.6	5.7	18.2	F, G
E10	UMPQUA	Lake Creek	1710030305	22.4	6.9	1.8	F
E10	UMPQUA	Upper Smith River	1710030306	175.0	1.5		F
E10	UMPQUA	Lower Smith River	1710030307	140.4	45.4	11.8	A, F, R
E10	UMPQUA	Lower Umpqua River	1710030308	35.4	49.2		F, G, U

Map Code	Subbasin	Watershed	HUC5 Code	Spawning/ Rearing PCEs (mi)	Rearing/ Migration PCEs (mi)	Presence/ Migration Only PCEs (mi)*	Management Activities**
E11	COOS	South Fork Coos	1710030401	83.5	33.7		A, F, G
E11	COOS	Millicoma River	1710030402	78.3	20.3		F
E11	COOS	Lakeside Frontal	1710030403	38.1	41.7		F, G, U
E11	COOS	Coos Bay	1710030404	94.0	149.9	1.4	F, U
E12	COQUILLE	Lower South Fork Coquille	1710030501	45.2	8.5		A, F, I, M
E12	COQUILLE	Middle Fork Coquille	1710030502	65.6	16.1		A, F
E12	COQUILLE	Middle Main Coquille	1710030503	40.6	36.3		A, F, G
E12	COQUILLE	East Fork Coquille	1710030504	34.2	11.2		A, F, G, I
E12	COQUILLE	North Fork Coquille	1710030505	99.3	37.7		A, F, U
E12	COQUILLE	Lower Coquille	1710030506	61.0	90.4		A, F
E13	SIXES	Sixes River	1710030603	32.9	25.5		A, F, G
E13	SIXES	New River Frontal	1710030604	60.5	30.0		A, F, G, I, S

* Some streams classified as "Presence/Migration Only PCEs" may also include rearing or spawning PCEs, but the GIS data are still undergoing review to confirm species use type.

** This list is not exhaustive. It is intended to highlight key management activities affecting PCEs in each watershed. Activities identified are based on the general categories described by Spence et al. (1996) and summarized previously in the "Special Management Considerations or Protection" section of this report. Coding is as follows: F= forestry, G = grazing, A = agriculture, C = channel modifications/diking, R = road building/maintenance, U = urbanization, S = sand and gravel mining, M = mineral mining, D = hydroelectric dams, I = irrigation impoundments and withdrawals, T = river, estuary, and ocean traffic, W = wetland loss/removal, B = beaver removal, X = exotic/invasive species introductions, H = forage fish/species harvest. Primary sources for this information were the CHART and watershed assessments cited in the References and Sources of Information section.

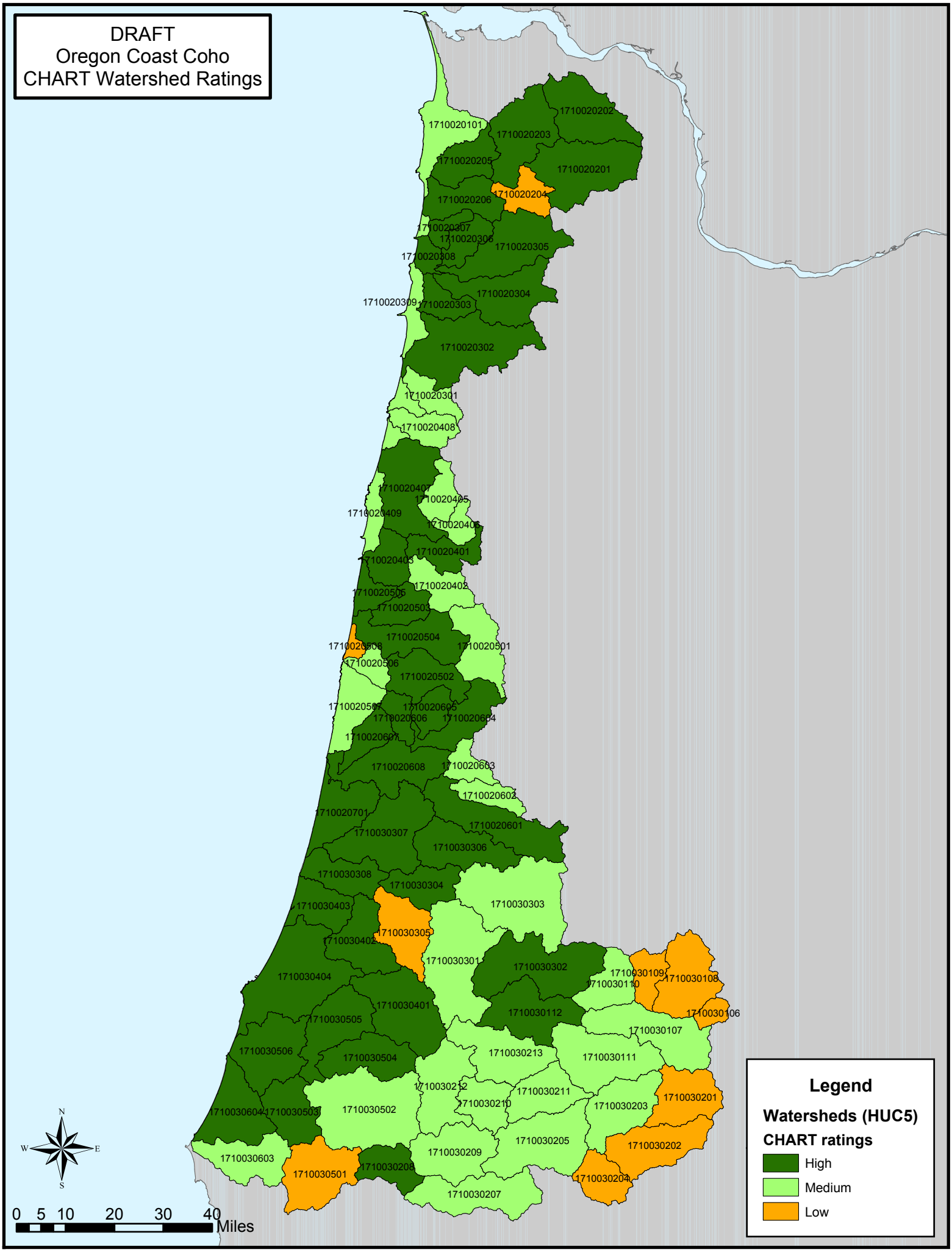
Table E2. Summary of Initial CHART Ratings of Conservation Value for Habitat Areas in HUC5 Watersheds Occupied by the Oregon Coast Coho Salmon ESU

Map Code	Subbasin	Watershed	HUC5 Code	Initial CHART Rating of HUC5 Conservation Value
E1	NECANICUM	Necanicum River	1710020101	Medium
E2	NEHALEM	Upper Nehalem River	1710020201	High
E2	NEHALEM	Middle Nehalem River	1710020202	High
E2	NEHALEM	Lower Nehalem River	1710020203	High
E2	NEHALEM	Salmonberry River	1710020204	Low
E2	NEHALEM	North Fork Of Nehalem River	1710020205	High
E2	NEHALEM	Lower Nehalem River/Cook Creek	1710020206	High
E3	WILSON/TRASK/ NESTUCCA	Little Nestucca River	1710020301	Medium
E3	WILSON/TRASK/ NESTUCCA	Nestucca River	1710020302	High
E3	WILSON/TRASK/ NESTUCCA	Tillamook River	1710020303	High
E3	WILSON/TRASK/ NESTUCCA	Trask River	1710020304	High
E3	WILSON/TRASK/ NESTUCCA	Wilson River	1710020305	High
E3	WILSON/TRASK/ NESTUCCA	Kilchis River	1710020306	High
E3	WILSON/TRASK/ NESTUCCA	Miami River	1710020307	High
E3	WILSON/TRASK/ NESTUCCA	Tillamook Bay	1710020308	High
E3	WILSON/TRASK/ NESTUCCA	Spring Creek/Sand Lake/Neskowin Creek Frontal	1710020309	Medium
E4	SILETZ/YAQUINA	Upper Yaquina River	1710020401	High
E4	SILETZ/YAQUINA	Big Elk Creek	1710020402	Medium
E4	SILETZ/YAQUINA	Lower Yaquina River	1710020403	High
E4	SILETZ/YAQUINA	Middle Siletz River	1710020405	Medium
E4	SILETZ/YAQUINA	Rock Creek/Siletz River	1710020406	Medium
E4	SILETZ/YAQUINA	Lower Siletz River	1710020407	High
E4	SILETZ/YAQUINA	Salmon River/Siletz/Yaquina Bay	1710020408	Medium
E4	SILETZ/YAQUINA	Devils Lake/Moolack	1710020409	Medium

Map Code	Subbasin	Watershed	HUC5 Code	Initial CHART Rating of HUC5 Conservation Value
		Frontal		
E5	ALSEA	Upper Alsea River	1710020501	Medium
E5	ALSEA	Five Rivers/Lobster Creek	1710020502	High
E5	ALSEA	Drift Creek	1710020503	High
E5	ALSEA	Lower Alsea River	1710020504	High
E5	ALSEA	Beaver Creek/Waldport Bay	1710020505	High
E5	ALSEA	Yachats River	1710020506	Medium
E5	ALSEA	Cummins Creek/Tenmile Creek/Mercer Lake Frontal	1710020507	Medium
E5	ALSEA	Big Creek/Vingie Creek	1710020508	Low
E6	SIUSLAW	Upper Siuslaw River	1710020601	High
E6	SIUSLAW	Wolf Creek	1710020602	Medium
E6	SIUSLAW	Wildcat Creek	1710020603	Medium
E6	SIUSLAW	Lake Creek	1710020604	High
E6	SIUSLAW	Deadwood Creek	1710020605	High
E6	SIUSLAW	Indian Creek/Lake Creek	1710020606	High
E6	SIUSLAW	North Fork Siuslaw River	1710020607	High
E6	SIUSLAW	Lower Siuslaw River	1710020608	High
E7	SILTCOOS	Waohink River/Siltcoos River/Tahkenitch Lake Frontal	1710020701	High
E8	NORTH UMPQUA	Boulder Creek	1710030106	Low
E8	NORTH UMPQUA	Middle North Umpqua	1710030107	Medium
E8	NORTH UMPQUA	Steamboat Creek	1710030108	Low
E8	NORTH UMPQUA	Canton Creek	1710030109	Low
E8	NORTH UMPQUA	Rock Creek/North Umpqua River	1710030110	Medium
E8	NORTH UMPQUA	Little River	1710030111	Medium
E8	NORTH UMPQUA	Lower North Umpqua River	1710030112	High
E9	SOUTH UMPQUA	Upper South Umpqua River	1710030201	Low
E9	SOUTH UMPQUA	Jackson Creek	1710030202	Low
E9	SOUTH UMPQUA	Middle South Umpqua River	1710030203	Medium
E9	SOUTH UMPQUA	Elk Creek/South Umpqua	1710030204	Low
E9	SOUTH UMPQUA	South Umpqua River	1710030205	Medium

Map Code	Subbasin	Watershed	HUC5 Code	Initial CHART Rating of HUC5 Conservation Value
E9	SOUTH UMPQUA	Middle Cow Creek	1710030207	Medium
E9	SOUTH UMPQUA	West Fork Cow Creek	1710030208	High
E9	SOUTH UMPQUA	Lower Cow Creek	1710030209	Medium
E9	SOUTH UMPQUA	Middle South Umpqua River	1710030210	Medium
E9	SOUTH UMPQUA	Myrtle Creek	1710030211	Medium
E9	SOUTH UMPQUA	Ollala Creek/Lookingglass	1710030212	Medium
E9	SOUTH UMPQUA	Lower South Umpqua River	1710030213	Medium
E10	UMPQUA	Upper Umpqua River	1710030301	Medium
E10	UMPQUA	Calapooya Creek	1710030302	High
E10	UMPQUA	Elk Creek	1710030303	Medium
E10	UMPQUA	Middle Umpqua River	1710030304	High
E10	UMPQUA	Lake Creek	1710030305	Low
E10	UMPQUA	Upper Smith River	1710030306	High
E10	UMPQUA	Lower Smith River	1710030307	High
E10	UMPQUA	Lower Umpqua River	1710030308	High
E11	COOS	South Fork Coos	1710030401	High
E11	COOS	Millicoma River	1710030402	High
E11	COOS	Lakeside Frontal	1710030403	High
E11	COOS	Coos Bay	1710030404	High
E12	COQUILLE	Lower South Fork Coquille	1710030501	Low
E12	COQUILLE	Middle Fork Coquille	1710030502	Medium
E12	COQUILLE	Middle Main Coquille	1710030503	High
E12	COQUILLE	East Fork Coquille	1710030504	High
E12	COQUILLE	North Fork Coquille	1710030505	High
E12	COQUILLE	Lower Coquille	1710030506	High
E13	SIXES	Sixes River	1710030603	Medium
E13	SIXES	New River Frontal	1710030604	High

Figure E1. Initial CHART Ratings of Conservation Value for Habitat Areas in HUC5 Watersheds Occupied by the Oregon Coast Coho Salmon ESU


DRAFT
Oregon Coast Coho
CHART Watershed Ratings
1710020202
1710020101
1710020203
1710020205
1710020201
1710020204
1710020206
1710020307
1710020306
1710020305
1710020308
1710020304
1710020309
1710020303
1710020302
1710020301
1710020408
1710020407
1710020405
1710020409
1710020404
1710020401
1710020403
1710020402
1710020505
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1710030304
1710030303
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1710030111
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1710030212
1710030211
1710030201
1710030210
1710030203
1710030604
1710030503
1710030502
1710030205
1710030202
1710030209
1710030603
1710030501
1710030208
1710030204
1710030207
N
W
E
S
0 5 10 20 30 40
Miles
Legend
Watersheds (HUC5)
CHART ratings
High
Medium
Low

Maps E1 through E13. Oregon Coast Coho Salmon ESU – Habitat Areas Under Consideration for Critical Habitat Designation

DRAFT
Oregon Coast Coho Distribution
Necanicum River Sub-basin (17100201)

Map E1

Legend

- Cities
- Dams
- Lakes
- Streams (1:100,000)
- Watersheds

Oregon Coast Coho

- Spawning/Rearing
- Rearing/Migration
- Migration/Presence

Land Ownership

- Federal
- Private/Other
- State/Local
- Tribal
- Unassigned
- Water

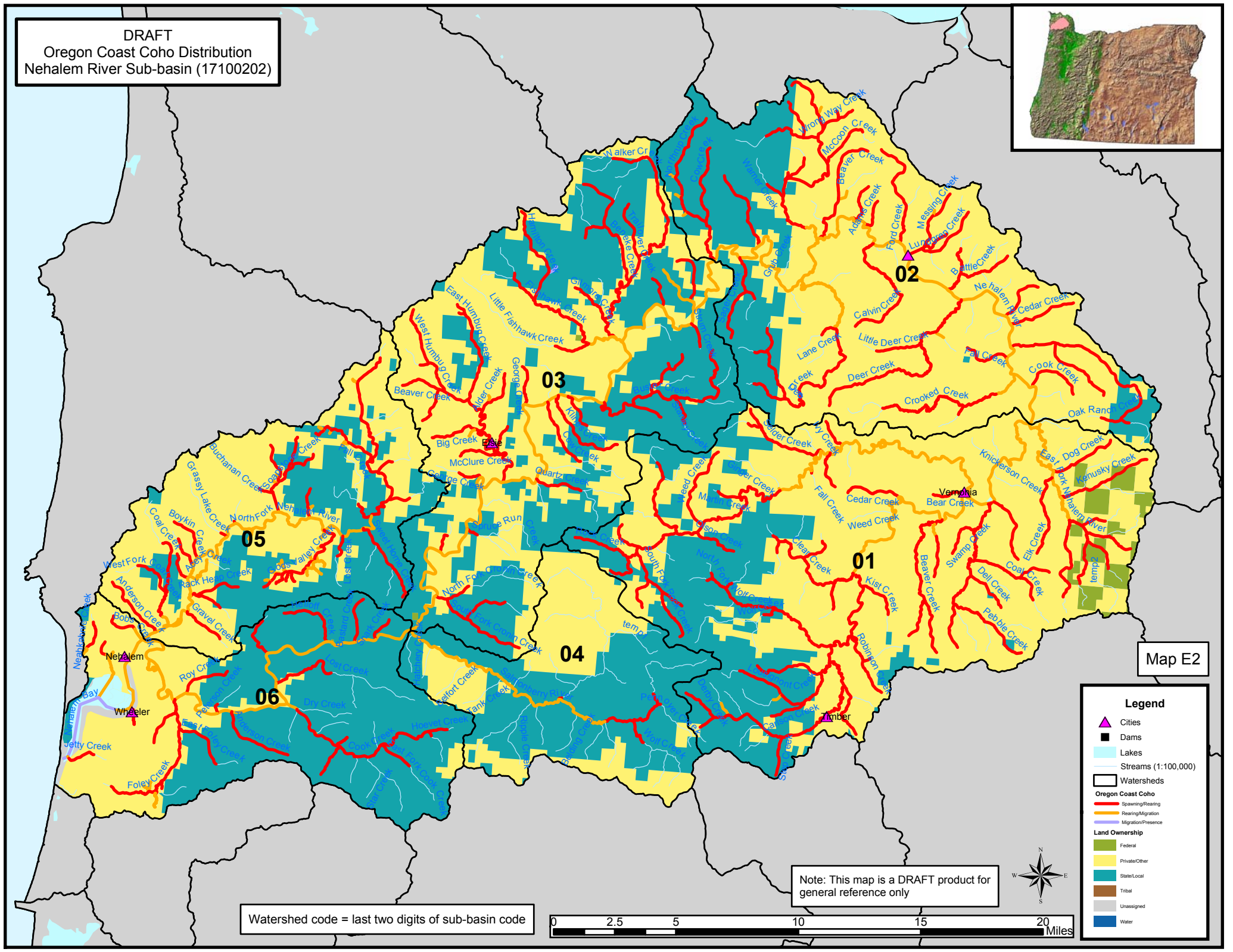
Sunset Lake
Neacoxie Creek
Mill Creek
Seaside
Beerman Creek
Circle Creek
Ecola Creek
Klootchie Creek
01
Necanicum River
Grindy Creek
Joes Creek
North Fork Ecola Creek
West Fork Ecola Creek
Arch Cape Creek
Manzanita

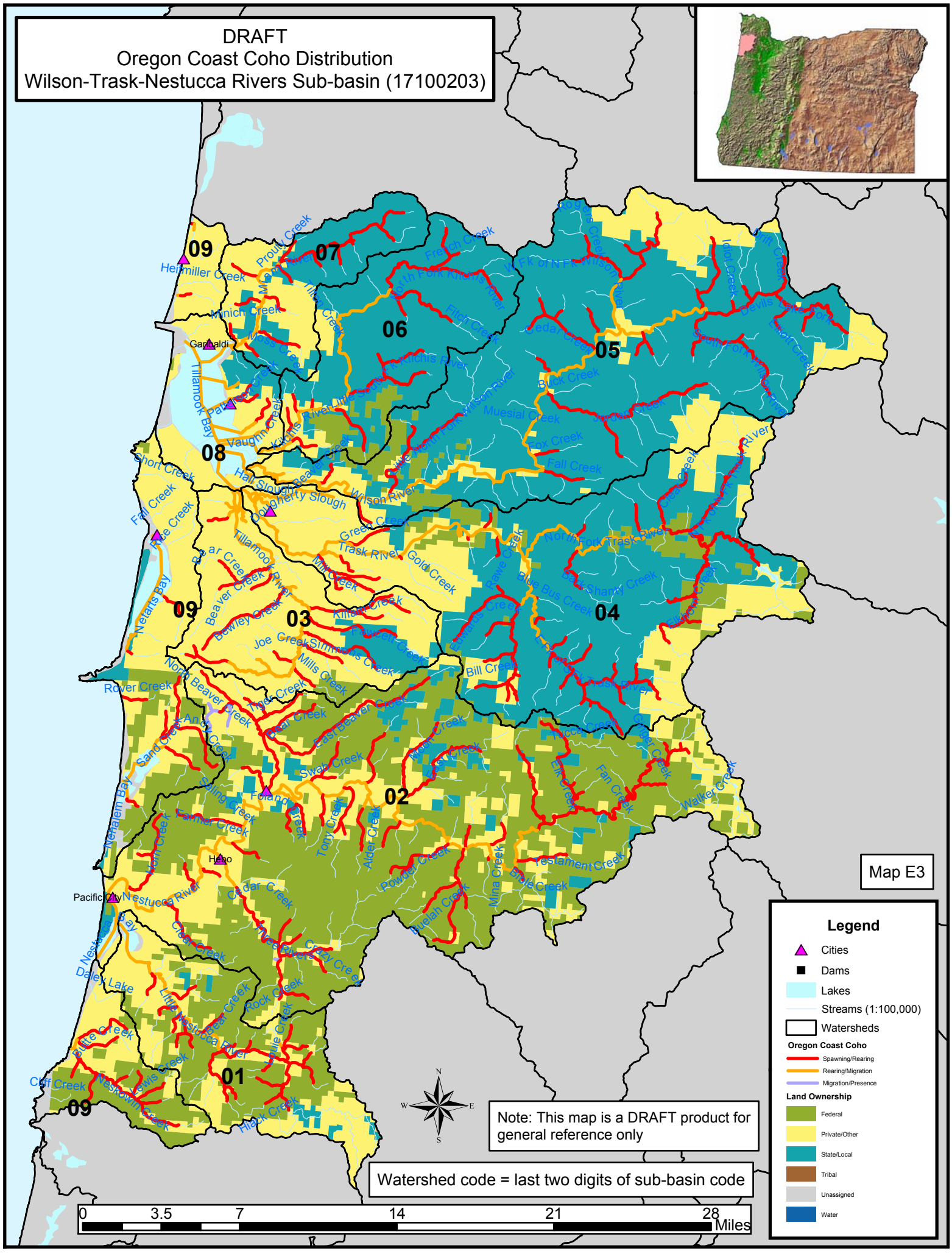
Note: This map is a DRAFT product for general reference only

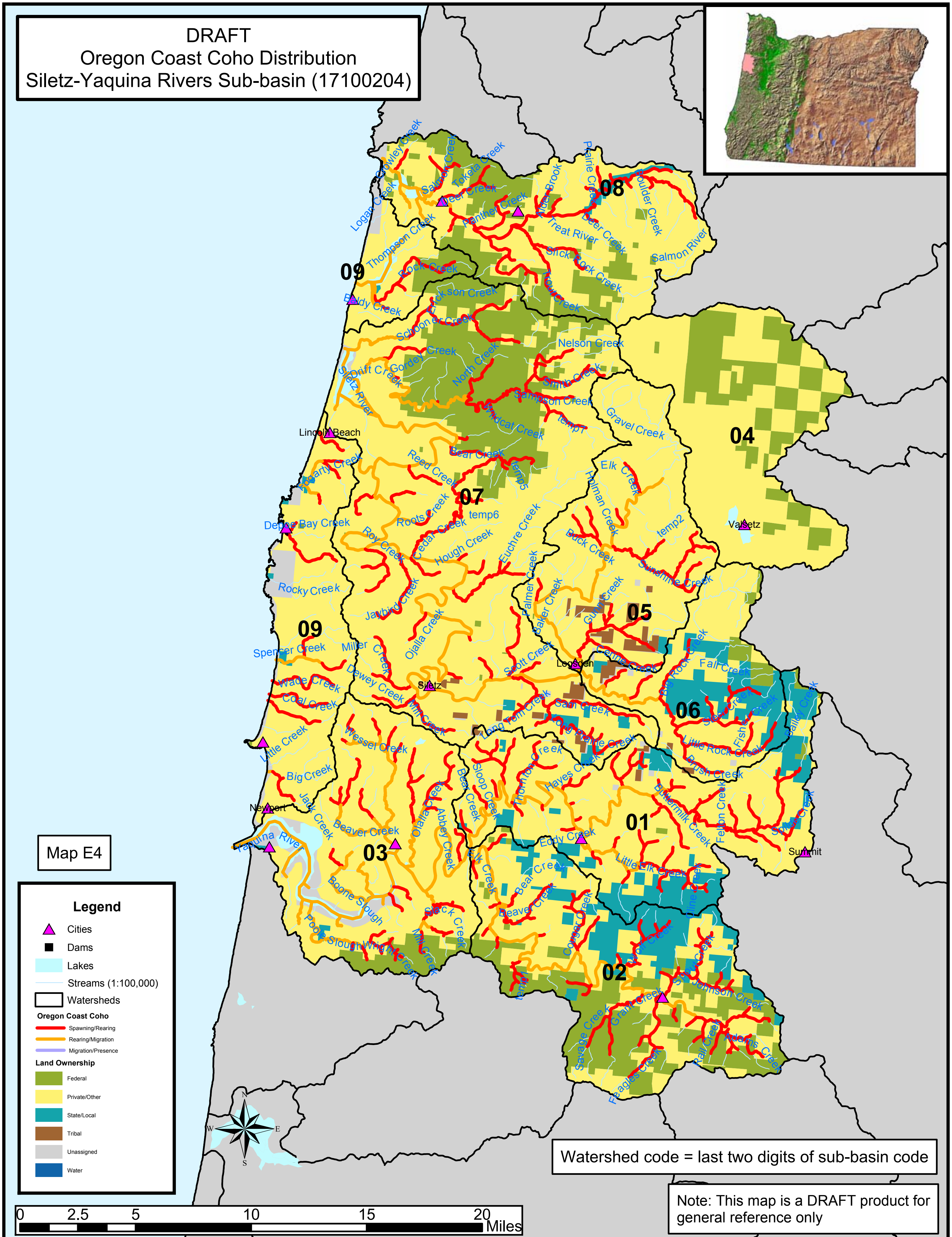
Watershed code = last two digits of sub-basin code

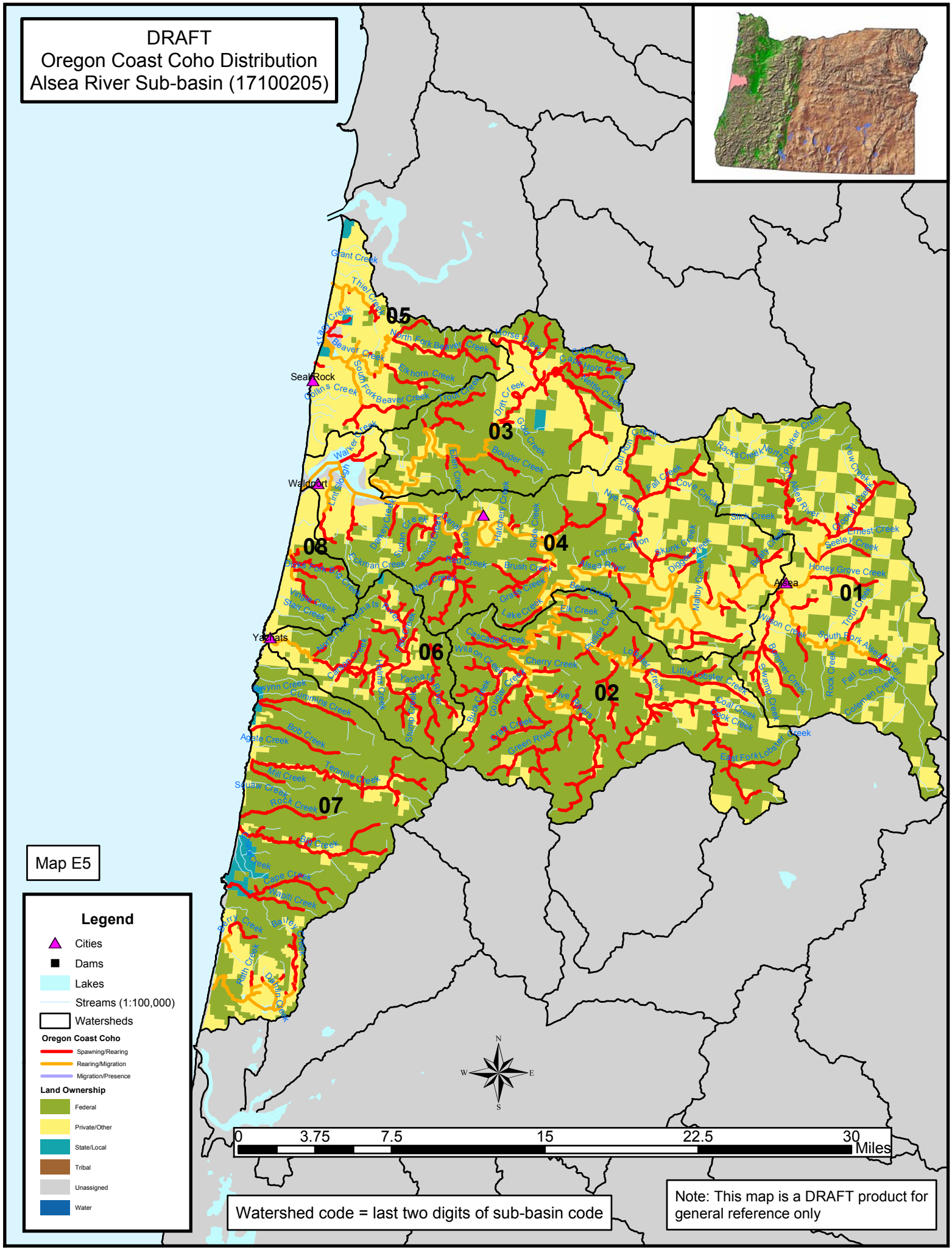
N
W
E
S

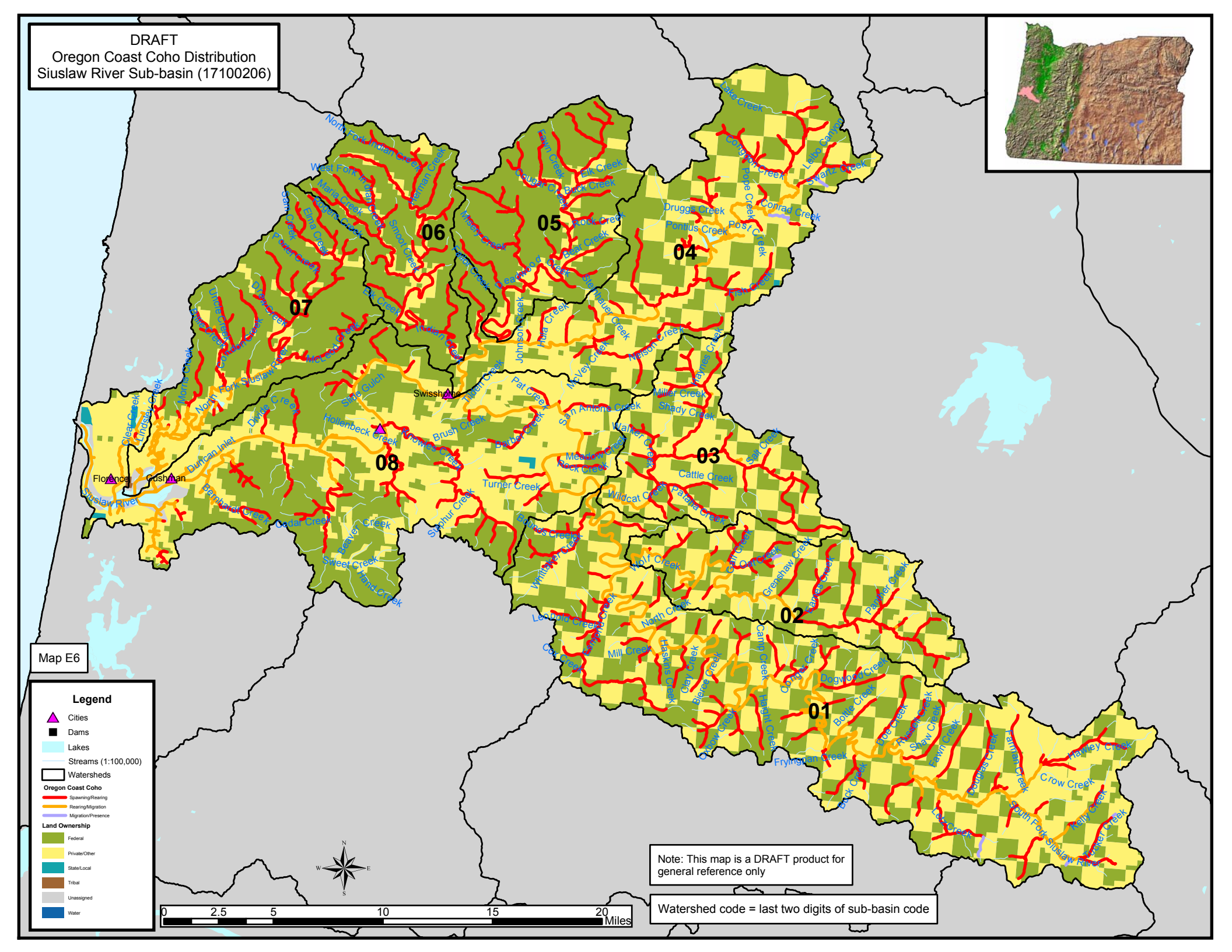
0 2.5 5 10 15 20 Miles

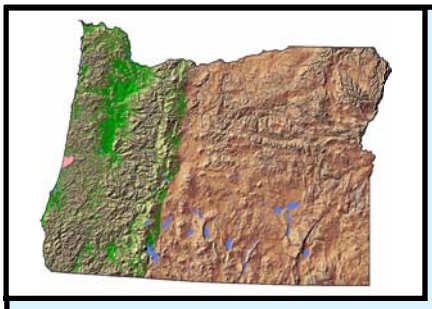

DRAFT
Oregon Coast Coho Distribution
Nehalem River Sub-basin (17100202)
01
02
03
04
05
06
Nehalem
Wheeler
Vernonia
Timber
Elsie
Watershed code = last two digits of sub-basin code
Note: This map is a DRAFT product for general reference only
0 2.5 5 10 15 20 Miles
Map E2
Legend
Cities
Dams
Lakes
Streams (1:100,000)
Watersheds
Oregon Coast Coho
Spawning/Rearing
Rearing/Migration
Migration/Presence
Land Ownership
Federal
Private/Other
State/Local
Tribal
Unassigned
Water


DRAFT
Oregon Coast Coho Distribution
Wilson-Trask-Nestucca Rivers Sub-basin (17100203)
09
07
06
05
08
09
03
04
02
09
01
Garibaldi
Pacific City
Hebo
Tillamook Bay
Nehalem Bay
Netarts Bay
Nestucca Bay
Nestucca River
Trask River
Wilson River
Tillamook River
Beaver Creek
Map E3
Legend
Cities
Dams
Lakes
Streams (1:100,000)
Watersheds
Oregon Coast Coho
Spawning/Rearing
Rearing/Migration
Migration/Presence
Land Ownership
Federal
Private/Other
State/Local
Tribal
Unassigned
Water
Note: This map is a DRAFT product for general reference only
Watershed code = last two digits of sub-basin code
0
3.5
7
14
21
28
Miles


DRAFT
Oregon Coast Coho Distribution
Siletz-Yaquina Rivers Sub-basin (17100204)
Map E4
Legend
Cities
Dams
Lakes
Streams (1:100,000)
Watersheds
Oregon Coast Coho
Spawning/Rearing
Rearing/Migration
Migration/Presence
Land Ownership
Federal
Private/Other
State/Local
Tribal
Unassigned
Water
01
02
03
04
05
06
07
08
09
09
Lincoln Beach
Depoe Bay Creek
Newport
Siletz
Logsden
Valsetz
Summit
Yaquina River
Siletz River
Salmon River
Treat River
Drift Creek
Schooner Creek
Gordey Creek
North Creek
Nelson Creek
Sampson Creek
Wildcat Creek
Gravel Creek
Elk Creek
Bear Creek
Reed Creek
Roots Creek
Cedar Creek
Hough Creek
Euchre Creek
Roy Creek
Rocky Creek
Jaybird Creek
Ojalla Creek
Spencer Creek
Miller Creek
Dewey Creek
Wade Creek
Coal Creek
Little Creek
Big Creek
Jack Creek
Wessel Creek
Mill Creek
Beaver Creek
Boone Slough
Poole Slough
Olalla Creek
Abbey Creek
Sloop Creek
Thornton Creek
Hayes Creek
Buttermilk Creek
Eddy Creek
Little Elk Creek
Grant Creek
Savage Creek
Johnson Creek
Adams Creek
Rail Creek
Fall Creek
Big Rock Creek
Little Rock Creek
Fisher Creek
Sam Creek
Scott Creek
Palmer Creek
Baker Creek
Buck Creek
Holman Creek
Sunshine Creek
Thompson Creek
Rock Creek
Crowley Creek
Salmon Creek
Toketa Creek
Panther Creek
Boulder Creek
Slick Rock Creek
Fogarty Creek
temp2
temp5
temp6
temp7
N
E
S
W
0
2.5
5
10
15
20
Miles
Watershed code = last two digits of sub-basin code
Note: This map is a DRAFT product for general reference only


DRAFT
Oregon Coast Coho Distribution
Alsea River Sub-basin (17100205)
Map E5
Legend
Cities
Dams
Lakes
Streams (1:100,000)
Watersheds
Oregon Coast Coho
Spawning/Rearing
Rearing/Migration
Migration/Presence
Land Ownership
Federal
Private/Other
State/Local
Tribal
Unassigned
Water
Seal Rock
Waldport
Yachats
Alsea
01
02
03
04
05
06
07
08
N
W
E
S
0
3.75
7.5
15
22.5
30
Miles
Watershed code = last two digits of sub-basin code
Note: This map is a DRAFT product for general reference only


DRAFT
Oregon Coast Coho Distribution
Siuslaw River Sub-basin (17100206)
Map E6
Legend
Cities
Dams
Lakes
Streams (1:100,000)
Watersheds
Oregon Coast Coho
Spawning/Rearing
Rearing/Migration
Migration/Presence
Land Ownership
Federal
Private/Other
State/Local
Tribal
Unassigned
Water
01
02
03
04
05
06
07
08
Florence
Cushman
Swisshome
Siuslaw River
Note: This map is a DRAFT product for general reference only
Watershed code = last two digits of sub-basin code
0 2.5 5 10 15 20 Miles



DRAFT
Oregon Coast Coho Distribution
Siltcoos River Sub-basin (17100207)

Siltcoos River
Siltcoos
Woahink Lake
Miller Creek
Maple Creek
Lane Creek
Tahkenitch Creek
Tahkenitch Lake
John Sims Creek
Dismal Swamp
Threemile Creek
Leitel Creek
Mallard Creek
Perkins Creek
Elvemile Creek
Hare Creek
Bell Creek
Billy Moore Creek
Fiddle Creek
Bear Creek
Alder Creek
Mills Creek
Carle Creek
Roache Creek
Stokes Creek
Ryder Creek
Tennile Creek
Jordan Creek
Carter Creek
Grant Creek

01

Map E7

Legend
- Cities
- Dams
- Lakes
- Streams (1:100,000)
- Watersheds

Oregon Coast Coho
- Spawning/Rearing
- Rearing/Migration
- Migration/Presence

Land Ownership
- Federal
- Private/Other
- State/Local
- Tribal
- Unassigned
- Water

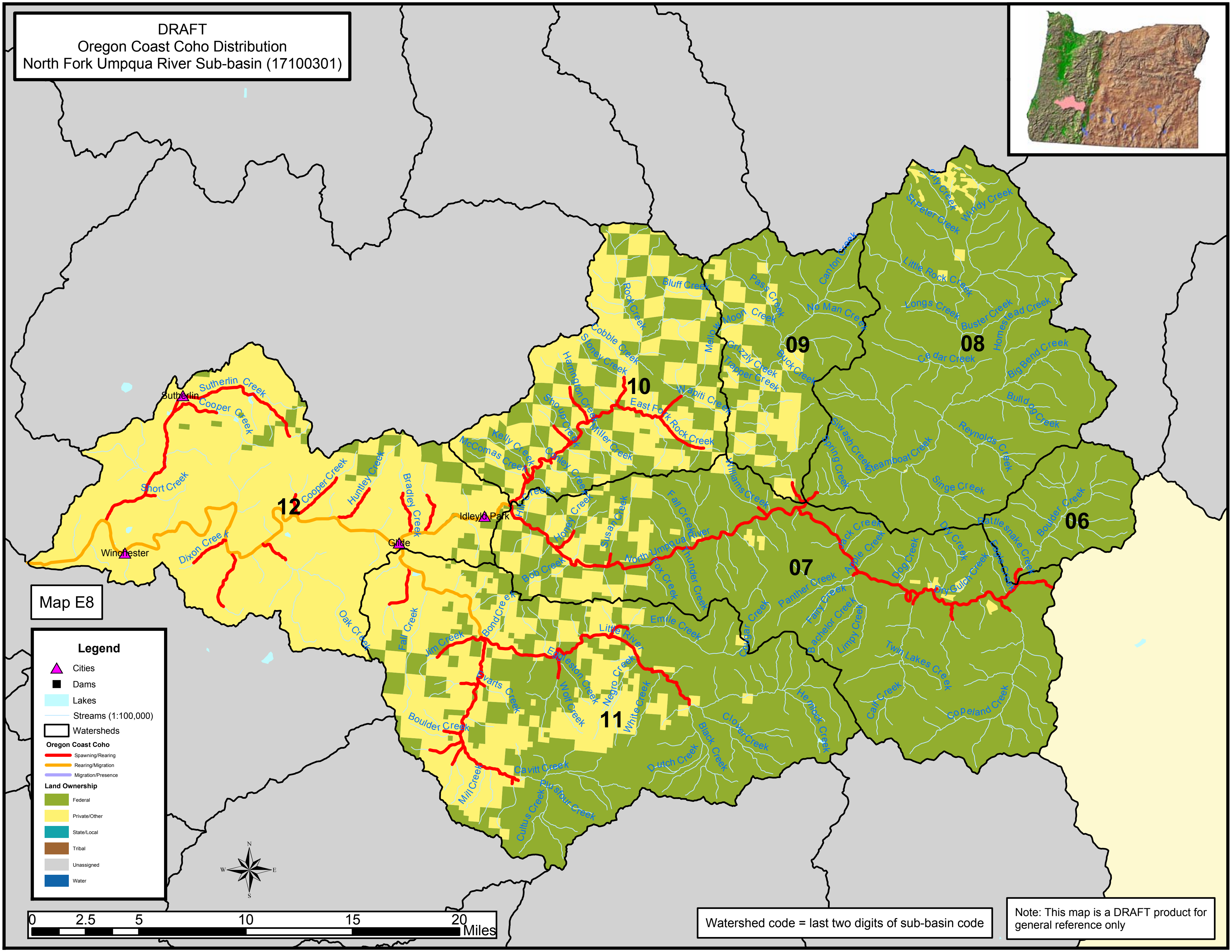
Note: This map is a DRAFT product for general reference only

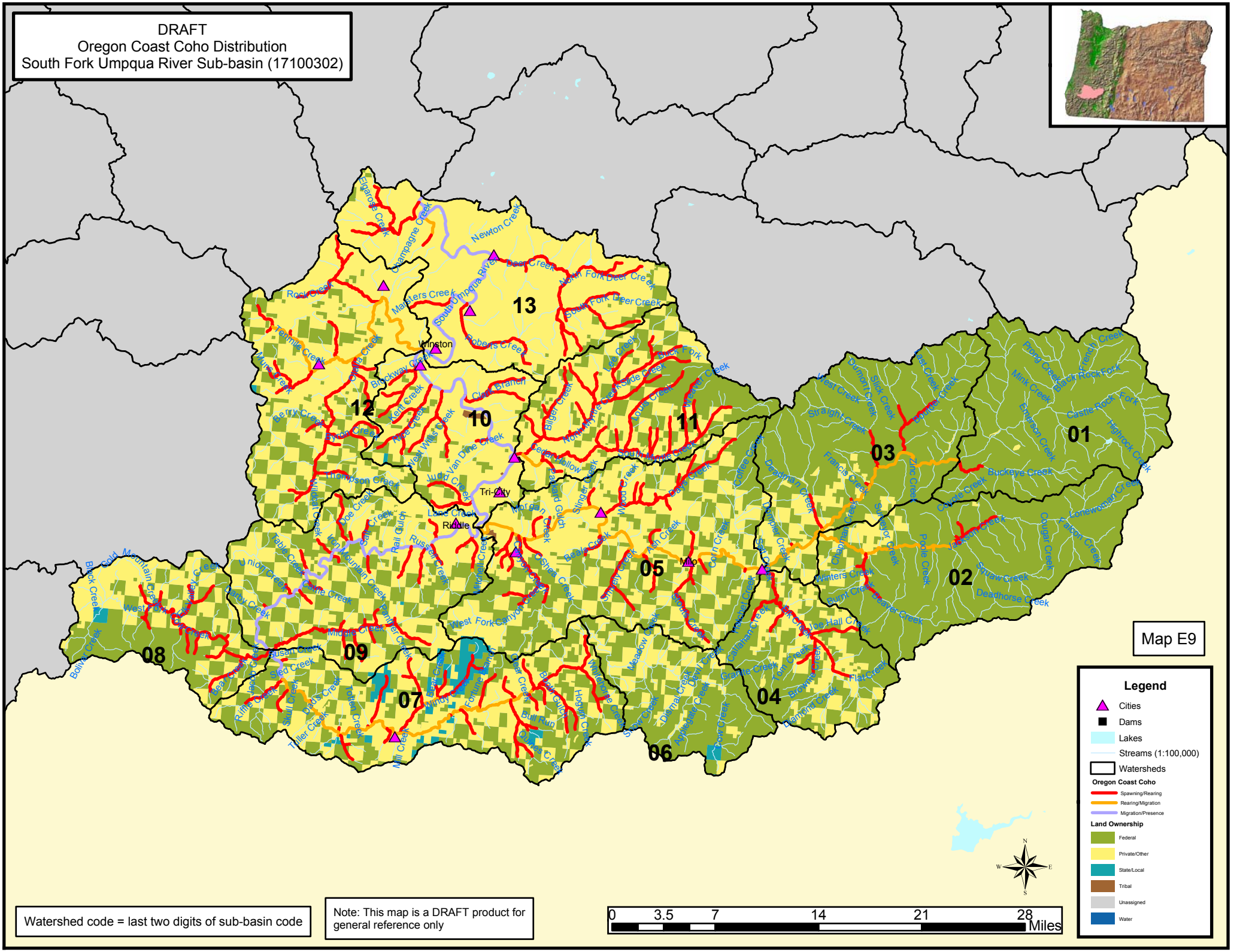
Watershed code = last two digits of sub-basin code

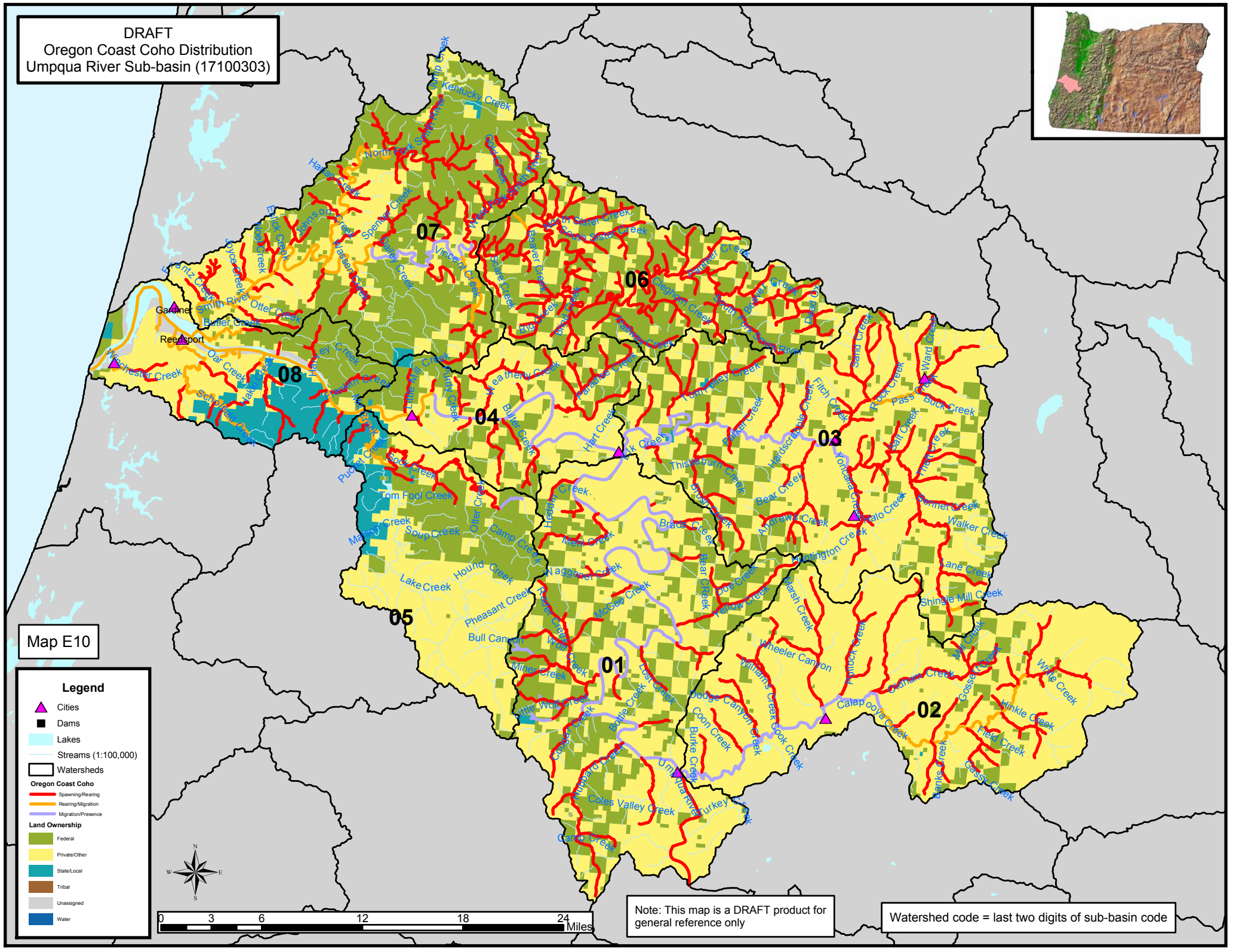
N
W
E
S

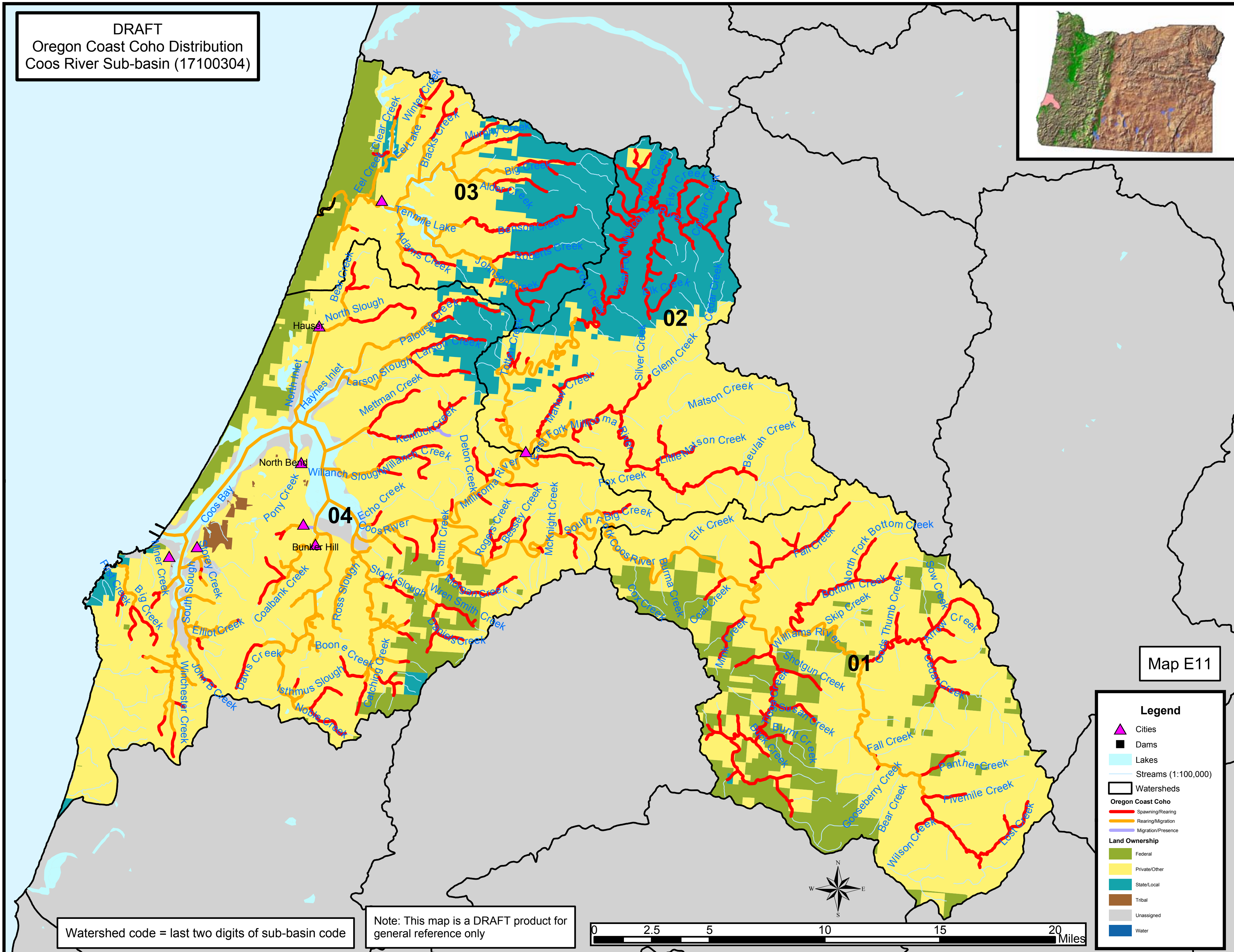
0 1.25 2.5 5 7.5 10 Miles

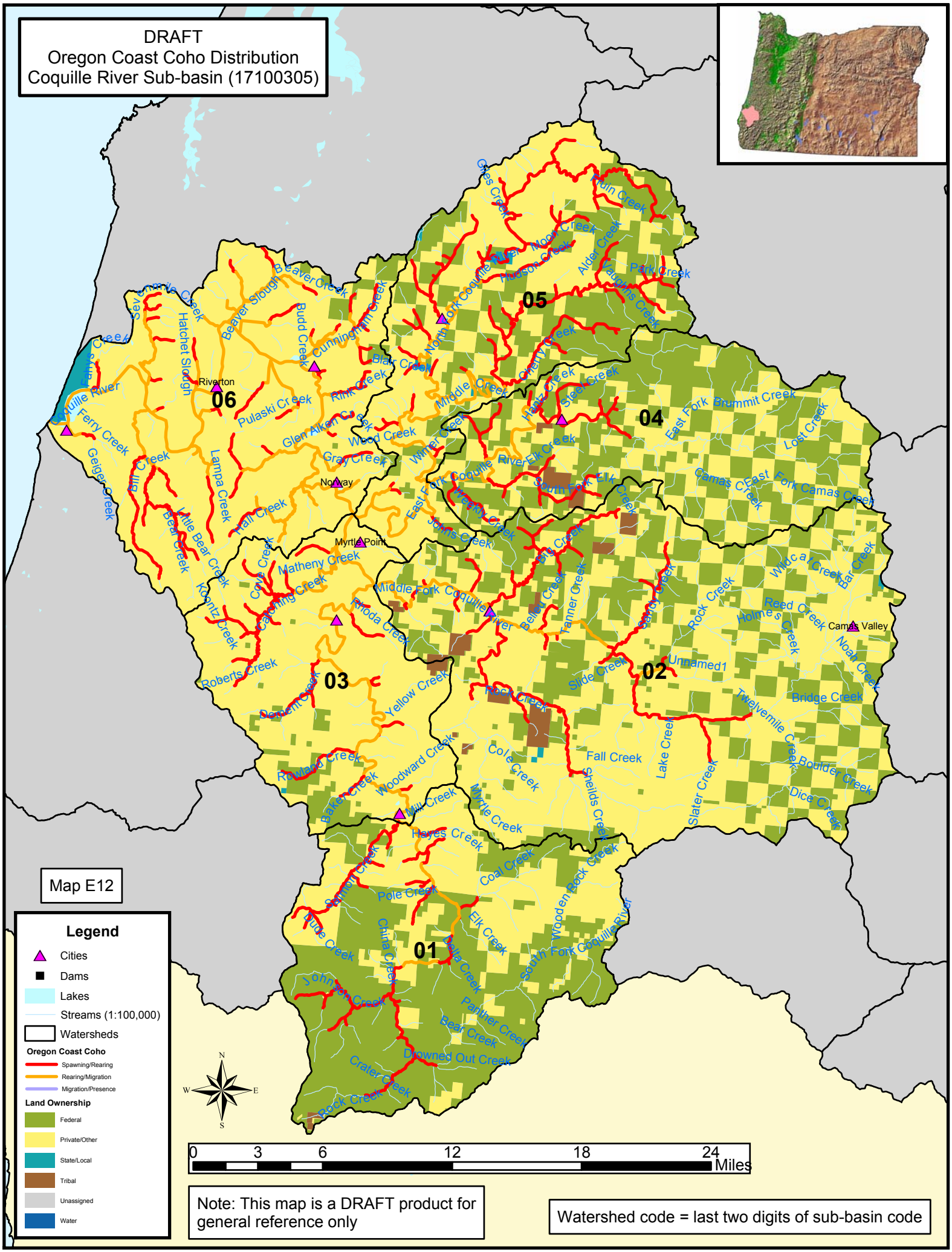
DRAFT
Oregon Coast Coho Distribution
North Fork Umpqua River Sub-basin (17100301)

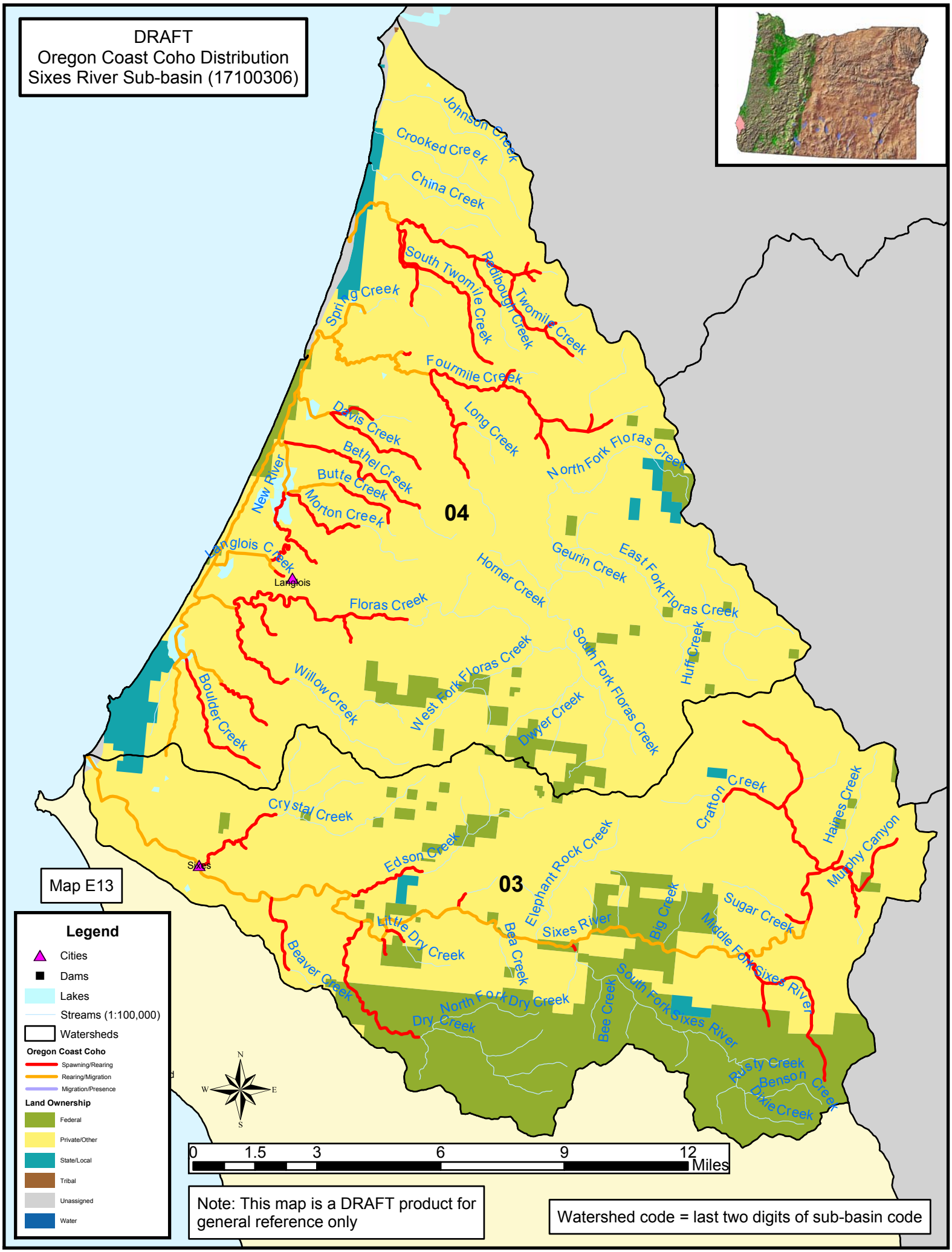



DRAFT
Oregon Coast Coho Distribution
South Fork Umpqua River Sub-basin (17100302)
Map E9
Legend
Cities
Dams
Lakes
Streams (1:100,000)
Watersheds
Oregon Coast Coho
Spawning/Rearing
Rearing/Migration
Migration/Presence
Land Ownership
Federal
Private/Other
State/Local
Tribal
Unassigned
Water
Watershed code = last two digits of sub-basin code
Note: This map is a DRAFT product for general reference only
0 3.5 7 14 21 28 Miles
Winston
Tri-City
Riddle
Milo
01
02
03
04
05
06
07
08
09
10
11
12
13


DRAFT
Oregon Coast Coho Distribution
Umpqua River Sub-basin (17100303)
Map E10
Legend
Cities
Dams
Lakes
Streams (1:100,000)
Watersheds
Oregon Coast Coho
Spawning/Rearing
Rearing/Migration
Migration/Presence
Land Ownership
Federal
Private/Other
State/Local
Tribal
Unassigned
Water
01
02
03
04
05
06
07
08
Gardiner
Reedsport
0 3 6 12 18 24 Miles
Note: This map is a DRAFT product for general reference only
Watershed code = last two digits of sub-basin code


DRAFT
Oregon Coast Coho Distribution
Coos River Sub-basin (17100304)
Map E11
Legend
Cities
Dams
Lakes
Streams (1:100,000)
Watersheds
Oregon Coast Coho
Spawning/Rearing
Rearing/Migration
Migration/Presence
Land Ownership
Federal
Private/Other
State/Local
Tribal
Unassigned
Water
01
02
03
04
Hauser
North Bend
Bunker Hill
Coos Bay
North Inlet
Haynes Inlet
North Slough
Larson Slough
Willanch Slough
Coos River
Millicoma River
South Slough
Isthmus Slough
Stock Slough
Williams River
Tenmile Lake
Eel Lake
Watershed code = last two digits of sub-basin code
Note: This map is a DRAFT product for general reference only
0 2.5 5 10 15 20
Miles


DRAFT
Oregon Coast Coho Distribution
Coquille River Sub-basin (17100305)
Riverton
Norway
Myrtle Point
Camas Valley
01
02
03
04
05
06
Map E12
Legend
Cities
Dams
Lakes
Streams (1:100,000)
Watersheds
Oregon Coast Coho
Spawning/Rearing
Rearing/Migration
Migration/Presence
Land Ownership
Federal
Private/Other
State/Local
Tribal
Unassigned
Water
N
W
E
S
0 3 6 12 18 24
Miles
Note: This map is a DRAFT product for general reference only
Watershed code = last two digits of sub-basin code


DRAFT
Oregon Coast Coho Distribution
Sixes River Sub-basin (17100306)
Johnson Creek
Crooked Creek
China Creek
South Twomile Creek
Pedlebough Creek
Twomile Creek
Spring Creek
Fourmile Creek
Long Creek
Davis Creek
Bethel Creek
Butte Creek
Morton Creek
New River
North Fork Floras Creek
04
Langlois Creek
Langlois
Floras Creek
Horner Creek
Geurin Creek
East Fork Floras Creek
Huff Creek
South Fork Floras Creek
West Fork Floras Creek
Dwyer Creek
Willow Creek
Boulder Creek
Crystal Creek
Sixes
Edson Creek
03
Elephant Rock Creek
Crafton Creek
Haines Creek
Murphy Canyon
Sugar Creek
Middle Fork Sixes River
Big Creek
Sixes River
Bea Creek
Little Dry Creek
Beaver Creek
North Fork Dry Creek
Dry Creek
Bee Creek
South Fork Sixes River
Rusty Creek
Benson Creek
Dixie Creek
Map E13
Legend
Cities
Dams
Lakes
Streams (1:100,000)
Watersheds
Oregon Coast Coho
Spawning/Rearing
Rearing/Migration
Migration/Presence
Land Ownership
Federal
Private/Other
State/Local
Tribal
Unassigned
Water
N
W
E
S
0 1.5 3 6 9 12
Miles
Note: This map is a DRAFT product for general reference only
Watershed code = last two digits of sub-basin code